THE EFFECT OF CLIPPING ON THE ROOT DEVELOPMENT OF ALFALFA.1

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In the spring of 1912 an experiment was started at Chico, Cal., to determine the effect on the root development of alfalfa of clipping the tops the first year. Seed of ordinary alfalfa was sown May 6 in two rows each 60 feet long and 4 feet apart. As nothing was planted closer than 20 feet on either side of the rows, the plants had an equal chance for development so far as space was concerned. No weeds were allowed to grow and the only difference in the treatment of the rows was in the matter of clipping. One of the rows was allowed to grow throughout the season undisturbed while the other was clipped on July 13 and September 1. The plants were all dug October 10 and the diameter of the roots immediately below the crown measured.

The row not clipped contained 104 plants. The total diameter of the roots was 1,100 mm., or an average diameter of 10.48 mm. The row clipped contained 116 plants. The total diameter of the roots was 867 mm., or an average diameter of 7.49 mm. The greater diameter of the unclipped plants was very marked.

In 1913 the experiments as carried out in 1912 was repeated. However, in this year the row plantings were made in triplicate to insure accuracy. As in 1912 the plants of the rows not clipped had decidedly the larger roots, though the difference was not as great as in 1912. The average diameter of the roots of the clipped row having the greatest average diameter was 0.77 mm, less than the average diameter of the roots of the unclipped row having the smallest average diameter. The data obtained in 1912 and 1913 are assembled in Table 1.

In addition to the row plantings plot plantings were made in 1913. Eight plots each containing 128 sq. ft. were planted April 21. The seed was planted in 2-inch squares in an attempt to have the plants uniformly spaced, but on account of poor germination the plants were on the average farther apart than 2 inches. However, the stand was

1 Received for publication April 12, 1916.